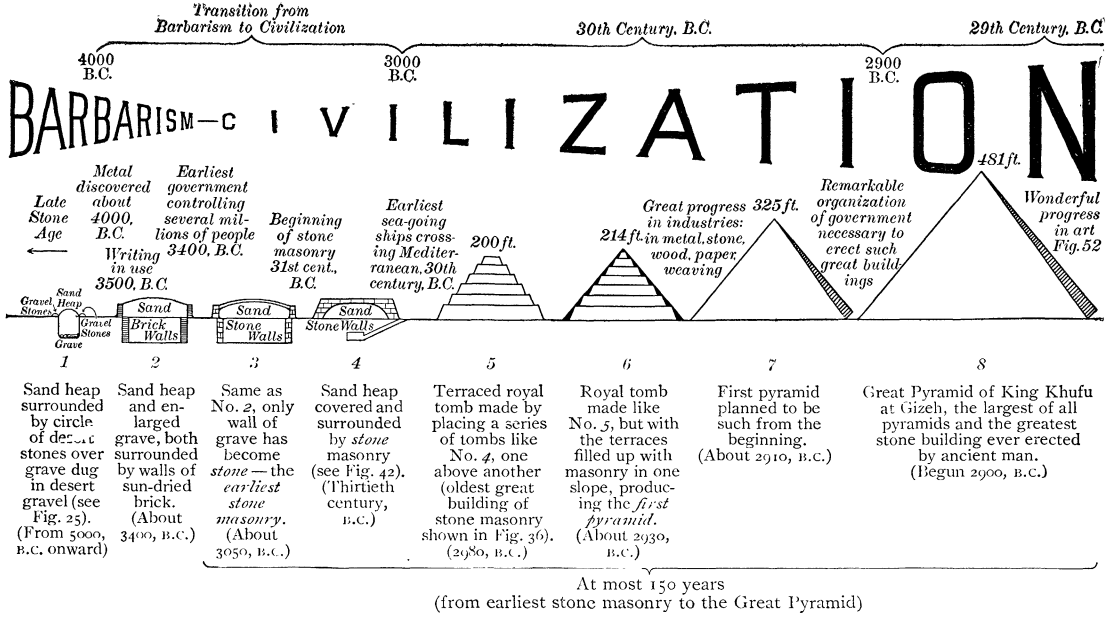


FIG. 65. DIAGRAM SHOWING THE EVOLUTION OF THE EGYPTIAN TOMB FROM THE SAND-HEAP TO THE PYRAMID. From the author's "Ancient Times," by permission of Ginn & Co.)

The body of the early Egyptian peasant lay at the bottom of a grave above which was a low heap of sand surrounded by a circle of rough desert stones to keep the sand in place. No. 1, above, shows this grave, cut down through the middle to expose the inside with the sand heap above it. In nos. 2, 3 and 4 we see the later tombs, also cut down through to expose the inside. They show how the circle of stones around the sand heap was slowly improved till it became real walls, first of brick (no. 2) and then of stone masonry (no. 3) enveloping the whole tomb, with the old sand heap still in the inside. Tombs like no. 4 were then placed one above the other, producing a tapering terraced building (no. 5) which was soon improved until it became a pyramid (no. 6). Thus the sand heap and its circle of stones were the germ out of which the mighty pyramids grew in the course of fifteen or twenty centuries. Notice how this wonderful growth in the art of building began with the sand heap in the barbarism of the Late Stone Age and thus carries us over from barbarism to civilization in the thousand years from 4000 to 3000 B.C. This great art of building was itself one of the things which marked the entrance upon civilization, and architecture passed from the earliest example of stone masonry to the Great Pyramid in only one hundred and fifty years. But incoming civilization was not marked only by progress in the art of building. The remarks inserted above, over the tombs and pyramids, suggest to us some of the other important achievements which helped to bring in and develop civilization, like the discovery of metal and the invention of writing, followed by the earliest government of a large population, the earliest seagoing ships, great progress in industries, and a remarkable development in art. We now see how the pyramids and their predecessors stand like milestones marking the long road by which man passed from barbarism to a highly developed civilization.

# THE ORIGINS OF CIVILIZATION[1]

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## LECTURE TWO

### THE EARLIEST CIVILIZATION AND ITS TRANSITION TO EUROPE

We have seen how the Stone Age hunters of the Nile gradually gained agriculture, domestic animals, metal, writing and industries, and leaving behind the men of the Mediterranean world elsewhere, in the thousand years between 4000 and 3000 B.C. transformed their northeast African game preserve into the first great state, regulated and controlled by a highly organized administration. This progress and especially its culmination in the thirtieth century B.C. is graphically visualized in the diagram in Fig. 65.

No. 1 at the extreme left end represents the pit grave, the only type of burial known until nearly 4000 B.C., which we saw in the first discussion. Surmounted by a low mound of sand, with perhaps a circle of stones around it, this earliest burial was the germ of the pyramid of stone masonry. We can trace the development from stage to stage—a development slow and gradual as civilization arose between 4000 and 3000 B.C., but quickening with surprising swiftness after passing 3000, that is during the thirtieth century, between 3000 and 2900 B.C. Hardly more than a generation before this thirtieth century the first example of hewn stone masonry was laid, and in the generation after this thirtieth century the Great Pyramid of Gizeh was built. With amazingly accelerated development the Egyptian passed from the earliest example of stone masonry just before 3000 B.C. to the Great Pyramid just after 2900. The great-grandfathers built the first stone masonry wall a generation or so before 3000 B.C., and the great-grandsons erected the Great Pyramid of Gizeh, within a generation after 2900. It will be seen that this development falls chiefly in the century between 3000 and 2900 B.C., that is the thirtieth cen-

[1] Delivered before the National Academy of Sciences in Washington, D. C., April 28 and 29, 1910, as the seventh series of lectures on the William Ellery Hale Foundation.

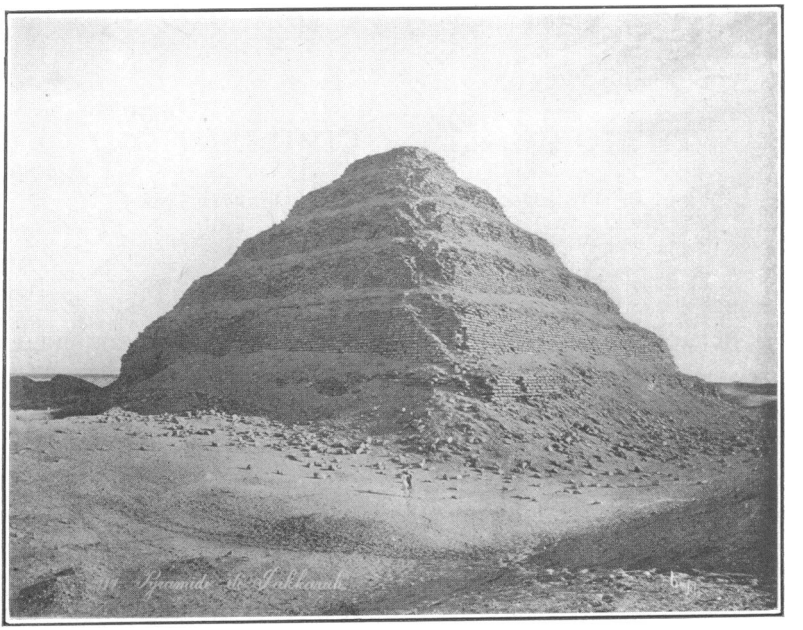

FIG. 66. TERRACED TOMB STRUCTURE OF PHARAOH ZOSER AT SAKKARA, EGYPT. The oldest known superstructure of stone,—built by the architect Imhotep (30th century B.C.).

tury B.C., which for this reason occupies more space in the diagram than the thousand years which precede it. No century in the history of man, except the nineteenth century of our era, has witnessed as rapid an expansion of man's control of material forces as the thirtieth century B.C.

It is therefore of great interest to contemplate the most revolutionary monument of that revolutionary century, the earliest stone building in existence (Fig. 66). This monument marks definitely the transition from sun-dried brick to stone masonry. It was erected as the tomb of King Zoser of the Third Dynasty, by his chief physician and architect Imhotep. This great man, the first builder of monumental architecture in stone, is little known, his fame having been rather groundlessly shifted to King Solomon by our friends, the modern Free Masons. Nevertheless we should not forget that he was the first builder to put up a great superstructure of stone 200 feet high, which still survives as the earliest stone building in existence. Imhotep's fame as a physician has eclipsed his reputation as an architect. He became the Asclepias of the Greeks, the Æsculapius of the Romans, and thus passed into the great company of the ancient gods.

The vast cemetery buildings which followed Imhotep's introduction of stone masonry superstructures reveal to us the first great civilized age of human history, an age to which these structures have given their name, so that it is commonly called the Pyramid Age. It lasted nearly 500 years from a little after 3000 to a little after 2500 B.C. The monuments and cemetery buildings of Gizeh are the monumental expression of the capacity of the first great state in human history.

They suggest a vista never to be forgotten. Out along the desert margin (Fig. 67) is many a grave of the prehistoric Egyptian peasant. The low sand or gravel heap, which once marked it, is the lineal ancestor of the vast monuments of Gizeh, the most tremendous feat of engineering ever achieved by ancient man. What a development is here! Not merely a development in the mechanical arts, which beginning with the sand heap have at last achieved the pyramid, but also a development in the organization of government and society, which slowly advancing in the thousand years or more which lie between the sand heap and the pyramid, has gradually passed from the feeble initiative and limited powers of the individual to the elaborate capacities of a highly organized state, so efficient that it is able with unerring precision to concentrate all

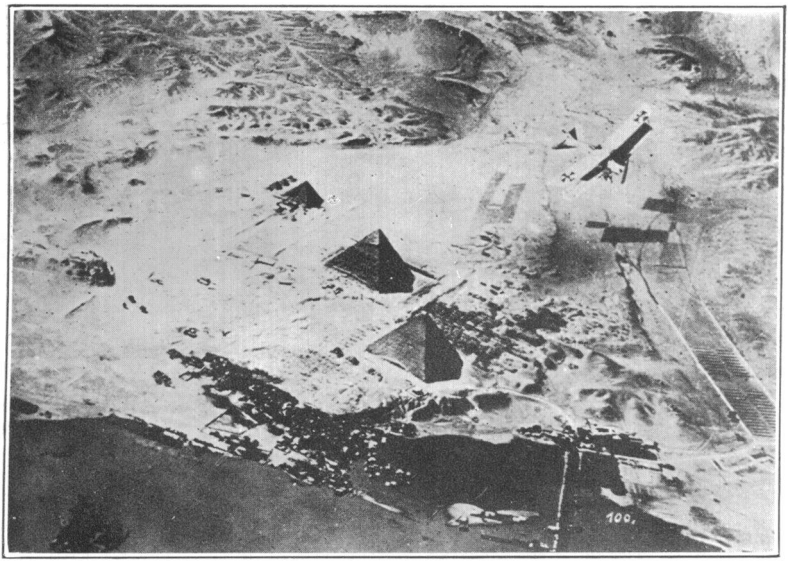

FIG. 67. THE CEMETERY OF GIZEH SEEN FROM AN AEROPLANE. These pyramids are the tombs of the kings and royal ladies of the Fourth Dynasty (about 2900 to 2750 B.C.). They are surrounded by the massive rectangular masonry tombs or "mastabas" of the nobles and officials of the same period. (Copyright by Moussault, N. Y.)

its vast resources of wealth and labor and mechanical skill upon one supreme achievement never later to be surpassed.

The Great Pyramid of Gizeh (Fig. 68) is the most impressive surviving witness to the final emergence of organized man from prehistoric chaos and local conflict, for it discloses him to us as he comes for the first time completely under the power of a far-reaching and comprehensive centralization effected by one all-controlling sovereign hand. Not the least remarkable aspect of this State is the sovereign's confidence in its efficiency. Here is a tomb containing 2,300,000 blocks of limestone, each weighing about two and a half tons, the assembling and erection of which in this building required the labor of one hundred

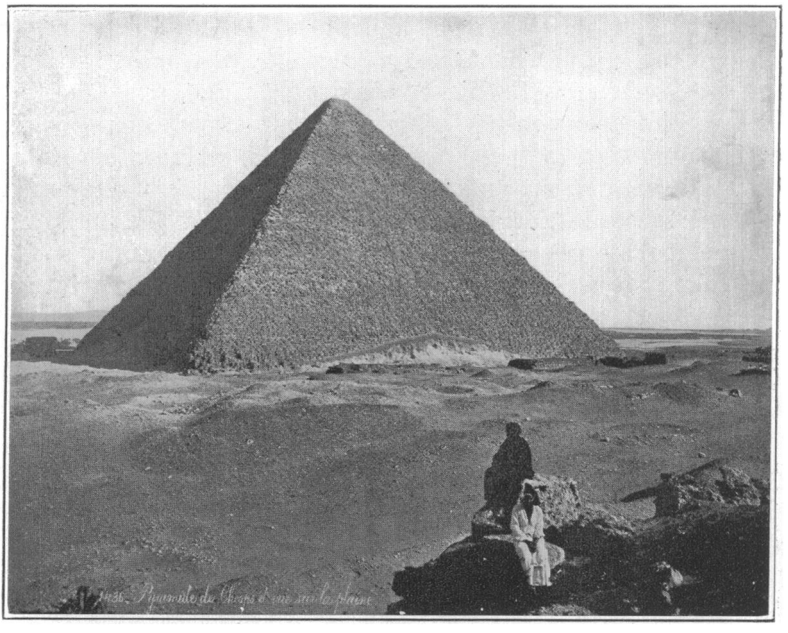

FIG. 68. THE GREAT PYRAMID OF GIZEH, THE TOMB OF THE PHARAOH KHUFU (CHEOPS), BUILT IN THE TWENTY-NINTH CENTURY B.C. It is the largest stone superstructure ever erected whether in ancient or (except recently) in modern times.

thousand men for some twenty years. Consider the daring imagination which could look out over this plateau, when it stood bare and empty, before its occupation by this building, and measuring off a square containing thirteen acres dared to begin covering it with a pile of stone masonry nearly 500 feet high. What must have been the mental quality of a man whose great-grandfathers had put together the first piece of stone masonry, and whose grandfathers had put up the first stone

superstructure—what must have been the mental quality of a ruler who dared to plan and undertake a tomb of such colossal proportions that no such structure ever later attempted has approached it in size or in quality of workmanship! Such considerations give us an impressive measure of the Pharaoh's confidence in the efficiency of his administrative machine.

He must likewise have had great confidence in the ability of his builders to meet the difficult problems which at once confronted them as they mounted the Gizeh plateau and began laying out the ground plan of the vast royal tomb which they were called upon to erect. One finds it difficult to imagine the feelings of these earliest architects, the great-grandsons of the men who had laid the first stone masonry, as they paced off the preliminary plan and found an elevation in the surface of the desert which prevented them from sighting diagonally from corner to corner and applying directly a well-known old Egyptian method of erecting an accurate perpendicular by means of measuring off a hypotenuse.

It is evident, however, that the Egyptian engineers early learned to carry a straight line over elevations of the earth's surface, or a plane around the bends of the Nile. In his endeavor to record the varying Nile levels in all latitudes the Egyptian engineer was confronted by nice problems in surveying even more exacting than those which he met in the Great Pyramid. A study of the surviving nilometers has disclosed the fact[25] that their zero points, always well below lowest water, are all in one plane. This plane inclines as does the flood slope, from south to north. The Pharaoh's engineers succeeded in carrying the line in the same sloping plane, around innumerable bends in the river for some seven hundred miles from the sea to the First Cataract. It is not surprising in view of the difficulty of the feat, accomplished as it necessarily was with primitive instruments about which we know nothing—it is not surprising under these circumstances, that although they kept their line in one plane, they did not succeed in establishing the slope of their line exactly parallel with the flood slope. Later, however, when they extended this line up river they succeeded in carrying it very closely parallel with the flood slope for some two hundred miles further southward to the Second Cataract.

The builders of the Great Pyramid were therefore already in possession of the methods which enabled the Pharaoh's engineers to lay out a seven-hundred mile line of nilometers in one plane. The sockets cut into the limestone surface of the desert

[25] L. Borchardt, "Nilmesser und Nilstandsmarken."

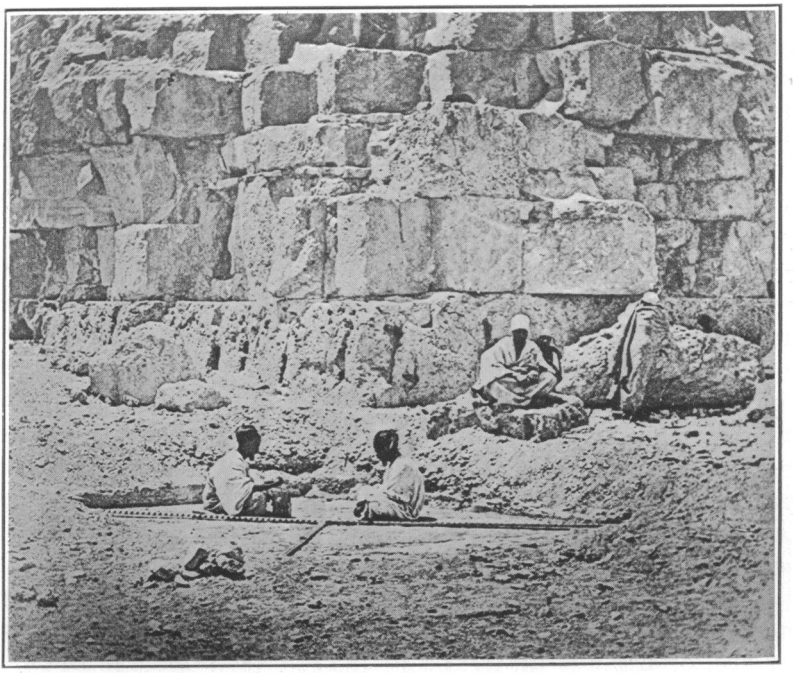

FIG. 69. RECTANGULAR SOCKET CUT IN THE NATIVE ROCK UNDERLYING THE GREAT PYRAMID. In this socket the northeast corner-stone of the building was laid; it was carried off by the Moslems.

plateau in which the cornerstones of the Great Pyramid were laid, still survive (Fig. 69), though the cornerstones themselves have been quarried out by Moslem vandals. These sockets enabled Petrie to establish the length of the sides as 755 feet. The maximum error he found to be .63 of an inch, that is less than one fourteen-thousandth of the total length of the side. The error of angle at the corners he found to be 12″ of a degree, that is one twenty-seven-thousandth of the right angle which the architect had laid out at the corner.

It is not a little interesting to follow the methods by which an agricultural people in a few generations developed the power to manipulate such vast masses of architectural materials as the Pharaoh's architects were then called upon to rear nearly 500 feet above this ground plan. The ruins of other pyramids and a pyramid left in an unfinished state at Gizeh have revealed much of the process of construction. Sun-dried brick ramps which were built higher as the pyramid rose, furnished an inclined plane up which the stone blocks were dragged by main strength on wooden sledges. Just how each block was shifted from the sledge to its particular place in the structure is still

uncertain; for the description of the device for this purpose left us by Herodotus is not clear. The indications now are that the pulley-block was already available, but it is unlikely that its ability to multiply power was understood. After the completion of the building the ramps were taken down (Fig. 70).

The most remarkable feat of engineering involved in the erection of the Great Pyramid is probably the construction chambers rising in a series over the sepulcher chamber (Fig. 71). We have here a series of five roofs, the lowest built of granite blocks about twenty-seven feet long, six feet high and over four feet thick. They weigh some fifty-four tons each. After being quarried at the First Cataract these heavy blocks were brought six hundred miles down the river, dragged up to the plateau and then up the brick ramps to a level perhaps two hundred feet above the pavement, where they were so laid that they might protect the burial chamber from being crushed in by the weight of more than two hundred vertical feet of masonry rising above it. The principle which the pyramid engineers seem to have had in mind, was a mistaken one. They seem to have thought that if the topmost granite roof gave way, it was a good thing to have another ready just below it. The series of granite roofs is therefore of purely contingent value. They are crowned however, by a wiser construction of enormous limestone beams, an arch in principle but in appearance a peak roof. These vast

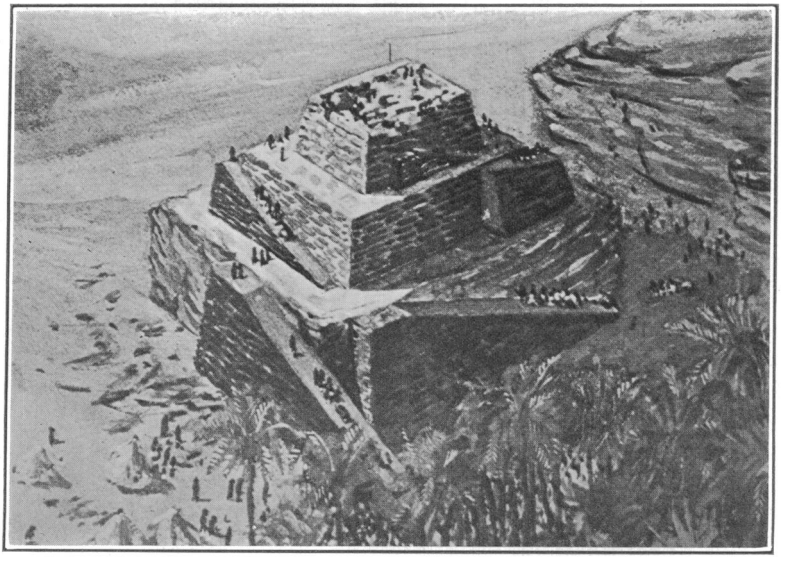

FIG. 70. UNFINISHED PYRAMID AT GIZEH, SHOWING SUN-DRIED BRICK RAMPS FOR CARRYING UP BUILDING MATERIAL. (Restored after Hoelscher.)

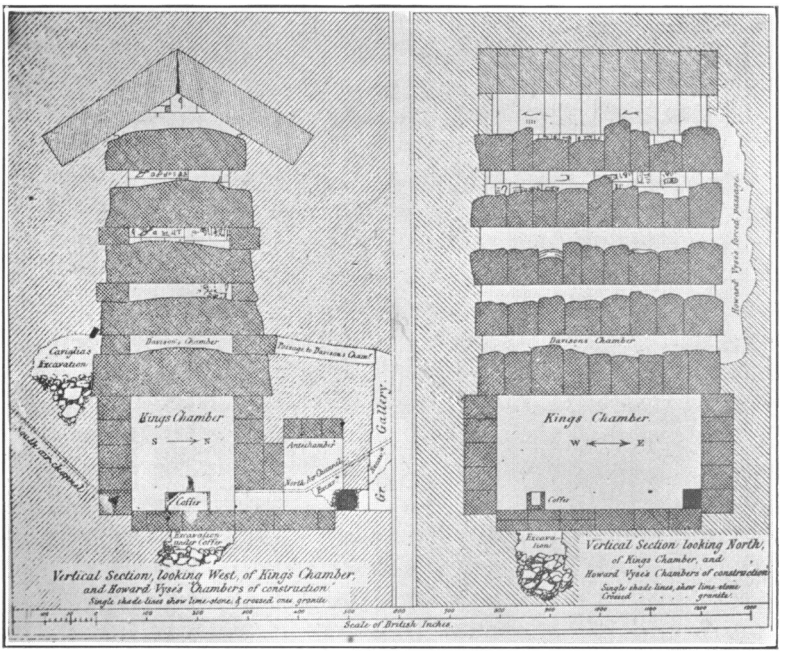


FIG. 71. SEPULCHRE CHAMBER IN THE GREAT PYRAMID OF GIZEH. Showing five precautionary construction chambers above it intended to carry the vast burden of the overlying masonry.

beams of limestone receive the colossal burden on their peak, and by their sideward thrust transfer it to the core masonry of the pyramid on each side of the sepulcher chamber, and thus save the roof of the latter from being crushed in. The effectiveness of the structure is strikingly brought out by the fact that although the beams of the horizontal granite roof immediately over the burial chamber have been broken short off entirely across the chamber by an ancient earthquake, nevertheless the contiguous ends of the beams on each side of the fracture have hardly settled perceptibly.

The ponderous mechanics of which the pyramid engineers were master is impressively illustrated by the enormous mass of stone chips produced by the army of stone-cutters who wrought 2,300,000 two-and-a-half ton blocks of limestone for the pyramid masonry. The accumulation of this rubbish had to be disposed of, and the foremen had it carried to the edge of the plateau and shot over the face of the cliff where it still lies at the angle of rest. It is equal in bulk to about half of the mass of the pyramid itself.[26]

[26] The best survey of the Great Pyramid has been furnished by Petrie, "The Pyramids and Temples of Gizeh," to which the above discussion is much indebted.

The industrial ability of the Nile-dwellers, which we found advancing so rapidly in the Early Dynasties, had in no way lagged behind the extraordinary engineering capacity which we have just been noticing. The skilful craftsmanship displayed in the cutting of the blocks for the Great Pyramid was certainly not to be expected from men whose great-grandfathers had laid the first stone masonry. The rough core masonry forming the present exterior of the building (Fig. 68) was originally sheathed in a magnificent cuirass of casing masonry extending from summit to base. Only a few blocks of this casing still survive along the base on the north side of the pyramid (Fig. 72). They were quarried away as building material by the Moslem builders of Cairo, especially from the fourteenth century A.D. In such finished masonry Petrie found joints displaying a contact of one five-hundredth of an inch, and joints of this kind are sometimes ten or twelve feet long. As Petrie has well said, we find here an accuracy like that of the manufacturing optician applied on a scale of acres.

The sovereign control of refractory materials by these consummate craftsmen at the beginning of the Pyramid Age is well illustrated by the new means of drilling which they had devised and the skill with which they applied it. The crank-drill of the Early Dynasties (Fig. 56) with a cutting edge of stone, which

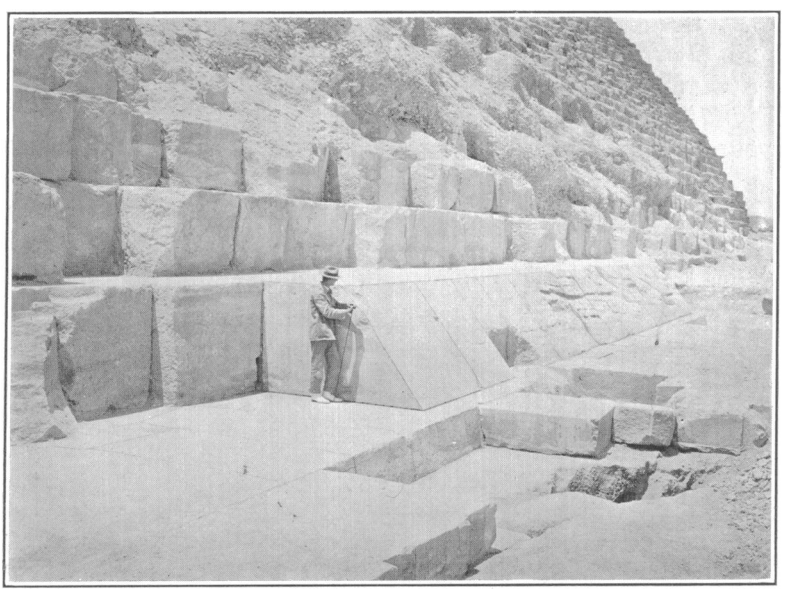

FIG. 72. BLOCKS OF CASING MASONRY OF THE LOWEST COURSE STILL IN POSITION ON THE NORTH SIDE OF THE GREAT PYRAMID. (Photograph by L. Dow Covington.)

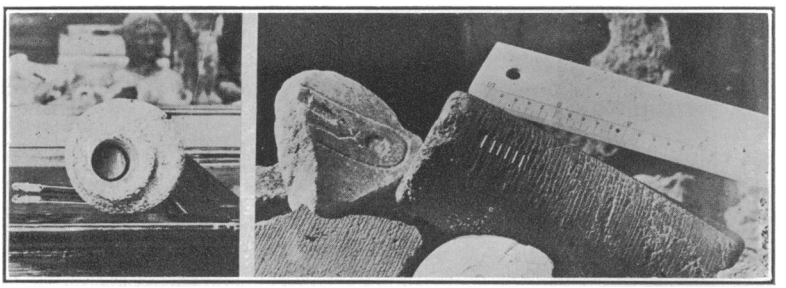

FIG. 73. UNFINISHED GRANITE VASE WITH THE BOTTOM OF THE CORE LEFT BY THE TUBULAR DRILL VISIBLE AT THE BASE OF THE BORE. (In the Field Museum of Natural History, Chicago.)

FIG. 74. CORE BROKEN OUT OF A HOLE MADE BY A TUBULAR DRILL AS SHOWN IN THE PRECEDING FIGURE. (From a photograph by Petrie.)

involved cutting out the entire mass of material included within its cylindrical bore, had been superseded by a tubular drill, presumably of copper reinforced by some cutting powder. It economized labor by boring around an interior core, which could later be broken away with a single blow (Figs. 73 and 74). This hollow tubular drill is a device which has been reinvented in our own time. The highly developed industries growing out of this ingenuity and skill in craftsmanship are elaborately displayed in colored relief sculptures in the masonry tombs of the nobles of the period at Gizeh (Fig. 67) and elsewhere in the great cemeteries of the Pyramid Age. Perhaps nothing better exemplifies the attainments which made Egypt the mother of arts than the sumptuous work of the lapidary and goldsmith (Fig. 75), which was already on its way to reach a supreme level of attainment never surpassed and rarely equaled in modern times.

The pyramid cemeteries likewise reveal to us the remarkable progress of this earliest highly cultivated age in architecture. In the development of fundamental architectural

FIG. 75. GOLDSMITH'S WORKSHOP IN THE PYRAMID AGE. *Upper row:* At left chief goldsmith weighs out costly stones and a scribe records the weights; next six men with blow-pipes are blowing a fire in a small clay furnace; next a workman pours out paste; at right end four men are beating gold leaf. *Middle row:* Pieces of finished jewelry. *Lower row:* Workmen seated at low benches are putting together and engraving pieces of jewelry. Several of these men are dwarfs.

forms the so-called Second Pyramid of Gizeh (Fig. 76), built by Khafre (Greek *Chefren*, Fig. 77), displays some remarkable advances, especially in the buildings connected with it. The unprecedented exaltation of the Pharaoh's power and station was converting his tomb into a great architectural complex where the ancient and originally simple practices for the maintenance of the dead were carried on with a sumptuous magnificence which required a fitting architectural setting. The food, drink and clothing once regularly presented to the dead by merely

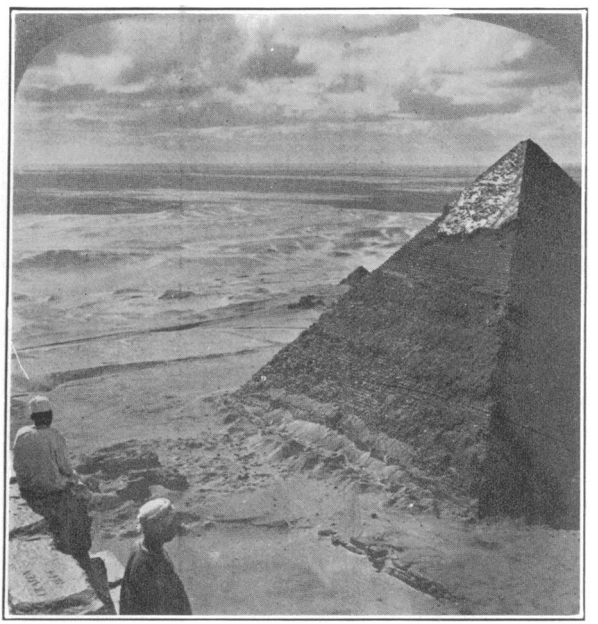

FIG. 76. SECOND PYRAMID OF GIZEH, BUILT BY KING KHAFRE IN THE 29TH CENTURY B.C. A bonnet of casing masonry is still preserved at the summit; below on the left we discern the ruins of the pyramid-temple described in the text and shown in Fig. 79. (By Underwood & Underwood, Copyright.)

setting it down before the simple tomb, now required a large and splendid building erected on the east side of the pyramid facing the royal city in the valley below. This building had thus become a mortuary temple, which we call a pyramid temple. Here ministered an endowed priesthood whose sole duty it was to maintain the offerings for the royal dead in the temple. They lived in the royal city below, and a long gallery, built of stone masonry a quarter of a mile in length, furnished them a convenient corridor, by means of which they could reach the temple above (Fig. 78). Giving access to this long cor-

FIG. 77. DIORITE PORTRAIT OF KING KHAFRE, BUILDER OF THE SECOND PYRAMID OF GIZEH (29TH CENTURY B.C.)

ridor there was at the lower or townward end, a monumental portal building, which seems to have served also as an additional and more conveniently accessible mortuary temple. It has therefore been appropriately termed by Reisner the "valley temple." All these parts making up the new and extensive pyramid complex may be easily recognized in Fig. 78.

In the development and design of these accessory structures the pyramid builders were confronted by fundamental problems

of monumental architecture, in the solution of which they made great advances. Chief among these problems was that of carrying the roof over the void, and likewise the lighting of a hall with very thick side walls. To carry the roof over the void the Gizeh architects introduced into the hall a series of massive rectangular piers, each pier a monolithic block of polished granite (Fig. 80), brought from the First Cataract. The problem of lighting such a hall was met by raising higher than the roof on either side a middle section of the roof symmetrically placed along the axis of the building. The difference in level between this higher central portion of the roof and the lower portions on each side was occupied by light chutes, which furnished light to the hall through the roof (Fig. 79). The pyramid architects had thus produced an incipient nave roofed by a clerestory, with openings for light which were the ancestors of clerestory windows, and the fundamental elements of the basilica and its child the Christian basilica cathedral were therefore devised by the early Egyptian builders of the twenty-ninth century B.C.

Within three generations and not much more than a century after the erection of Khafre's splendid hall at Gizeh, the royal architects of Egypt were looking back upon the Gizeh buildings as crude and archaic. At Abusir, a few miles up the margin of the desert south of Gizeh, they were erecting for the Pharaohs of the Fifth Dynasty (2750 to 2625 B.C.) a wonderful

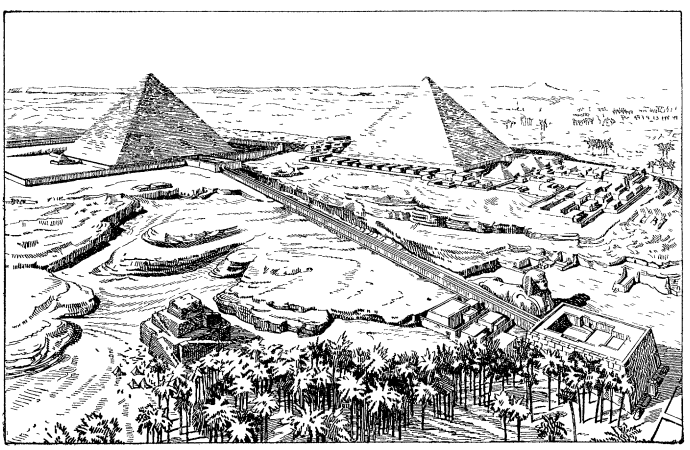

FIG. 78. RESTORATION OF THE GIZEH CEMETERY. (After Hoelscher.) The Great Pyramid of Khufu (Cheops) is on the right, from the summit of which the view in Fig 76 was taken; and the Second Pyramid of Khafre is on the left, with its temple and causeway or covered corridor connecting the temple above with the royal city below. Beside the "valley temple" giving access to the corridor is the Great Sphinx, a portrait of Khafre.

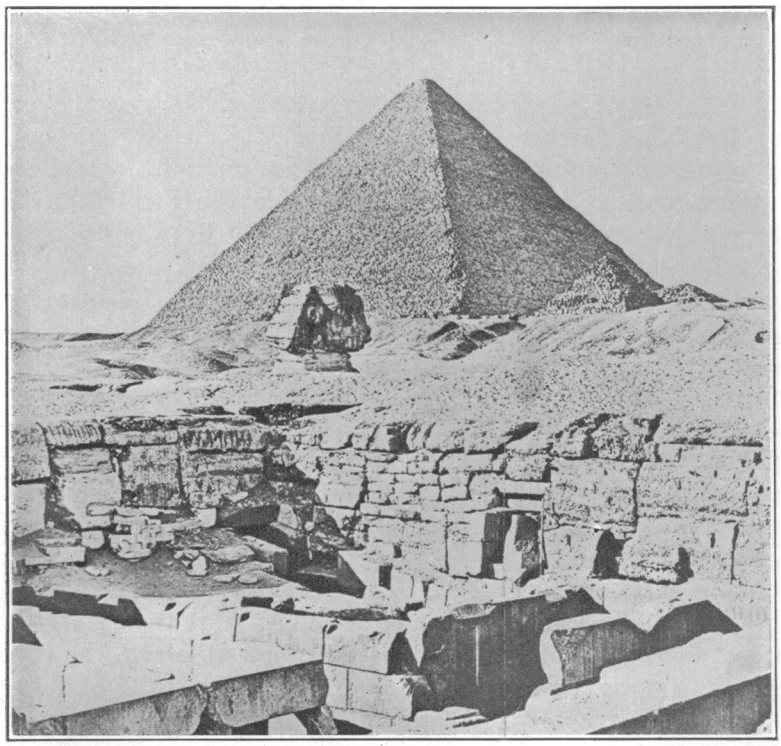

FIG. 79. INCIPIENT CLERESTORY IN THE HALL OF THE VALLEY TEMPLE OF KHAFRE AT GIZEH BUILT IN THE 29TH CENTURY B.C. The narrow light-chutes occupying the difference in level between a higher roof over the nave and a lower roof beside it are the lineal ancestors of the clerestory windows of European architecture. The oblique light which they admit is seen in Fig. 80.

series of tombs (Fig. 81) displaying remarkable progress in architecture. The Abusir pyramids themselves were to be sure much smaller and less imposing than those of Gizeh, but the pyramid temples at Abusir gave the Fifth Dynasty architects opportunities not presented by the pyramid form which was a matter already settled. In place of the bare rectangular Gizeh piers of a century earlier the Abusir architects designed a series of supports (Fig. 82) each representing a conventionalized palm tree, the trunk of which formed the shaft of a column, the capital being the graceful crown of foliage surmounting the whole. Thus emerged at the hands of Egyptian architects in the middle of the twenty-eighth century B.C. the earliest known columns and the first colonnades (Fig. 83).

These earliest colonnades are notable not only as such, but also because they are the earliest outstanding examples of the Egyptian use of decorative motives taken from the vegetable

world. It showed the way for the development of the rich fund of decorative beauty which the architects and artists of western Asia and Europe, following Egypt, afterward discovered in vegetable forms, as they brought forth such things as the Corinthian column or the sumptuous carving of the Gothic cathedrals. Moving along the same line the Abusir architects also devised charming columns by the use of the lotus and papyrus, of which the latter became very common.

It is impossible within the limits of this brief sketch to discuss the social and governmental development which went on parallel with the amazingly rapid mechanical, industrial, artistic and architectural advance at which we have been glancing.

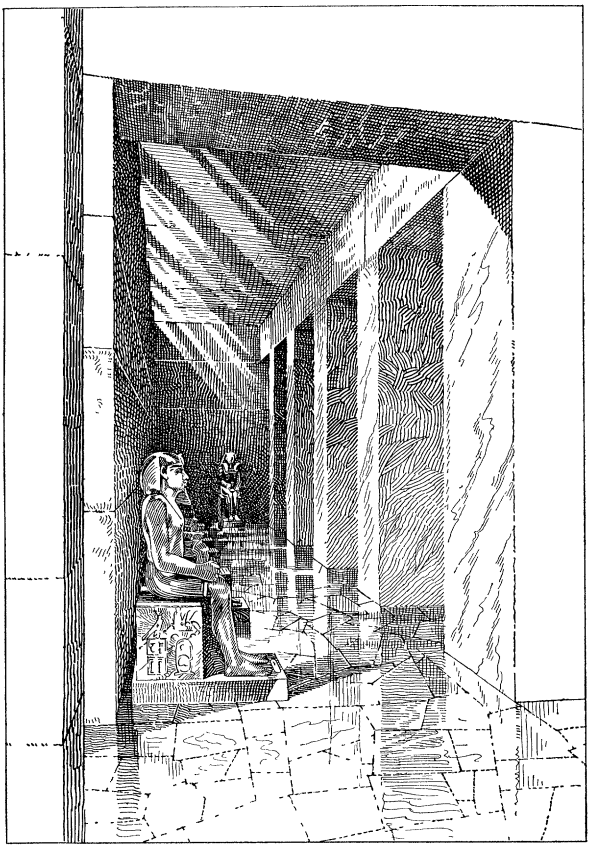

FIG 80 RESTORATION OF CLERESTORY HALL IN THE VALLEY TEMPLE OF KHAFRE AT GIZEH. (After Hoelscher) This is the hall seen beside the Great Sphinx at the foot of the long corridor in Fig. 78. A double row of the rectangular piers seen here supports a roof higher than that on either side of it and thus forms a real nave. The oblique light comes through the light-chutes, or incipient clerestory windows, as shown in Fig. 79.

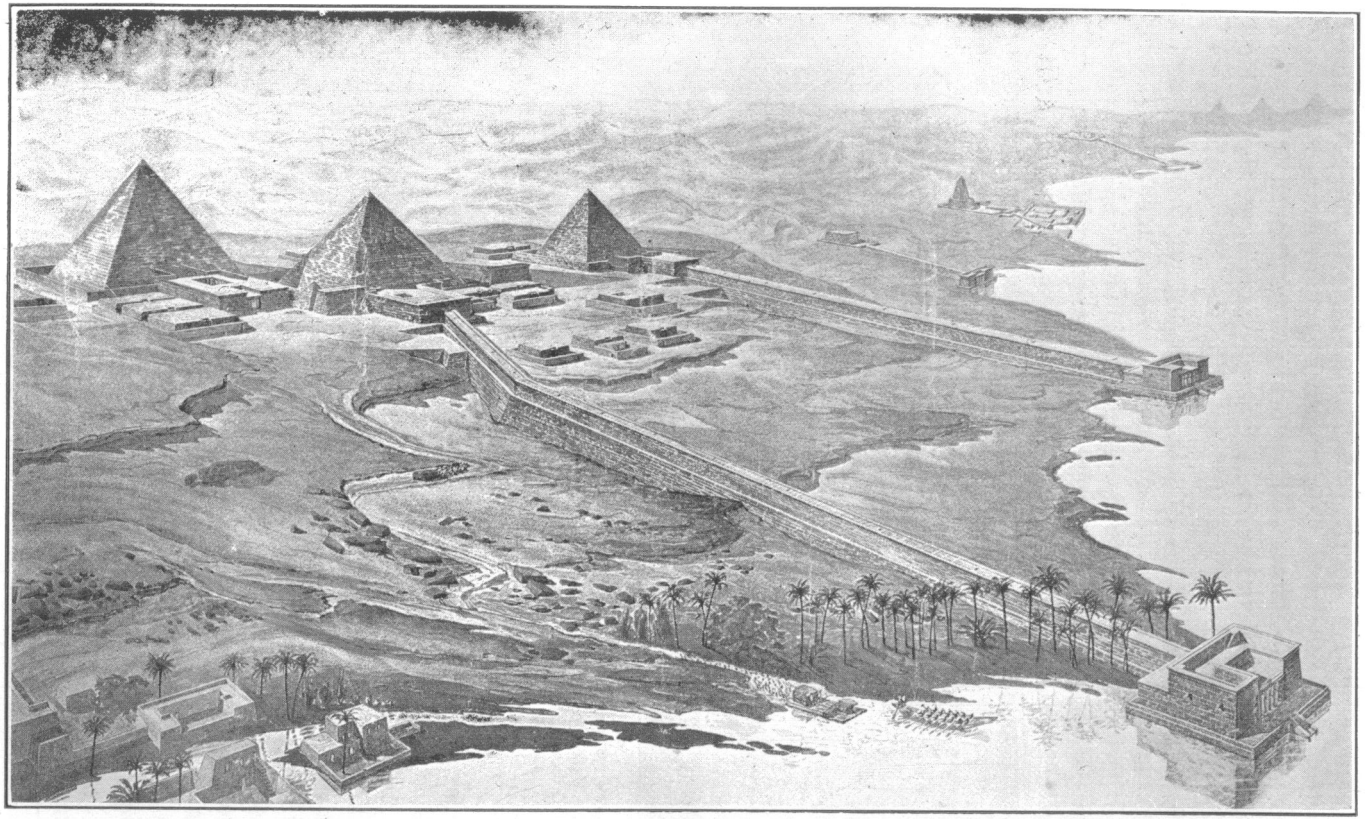

FIG. 81. RESTORATION OF THE PYRAMID CEMETERY OF THE FIFTH DYNASTY AT ABUSIR BUILT IN THE 28TH AND 27TH CENTURIES B.C. (After Borchardt.) The pyramid of Sahure, built not long after 2750 B.C., with its corridor and temples is seen in the background. Here were found the colonades and the sea-going ships shown in Figs. 82–84.

As we recall the Nile valley of the Pleistocene Age, we are conscious of the marvelous transition through which it has passed. We of America are especially fitted to visualize and to understand the wonderful transformation of a wilderness into a land of splendid cities. But the men whose powers of achievement planted great and prosperous cities along the once lonely trails of our own broad land, received art, architecture, industry, commerce and social and governmental traditions as an inheritance from earlier times. There was an age, however, when the development from barbarism to civilization with all its impressive outward manifestations in art and architecture had to be accomplished *for the first time.* That happened along the Nile, and it seems therefore like a magical transition, as we see the trail of the Stone Age hunter leading up from the river through the jungle marsh, transformed into an avenue of sculptured sphinxes and tall obelisks; while in the background where once the trail terminated at the hunter's group of wattle huts peeping through the reeds, there rises a stately city adorned with imposing temples and monuments of stone.

The prehistoric hunter whose self-expression was quite content to ply the flint graving tool in carving symmetrical lines of game beasts along the ivory handle of a flint dagger has been transformed by fifty generations of social evolution into a royal architect, able to transmute his visions of a great state into architectural forms of dignity and splendor, launching great bodies of organized craftsmen upon the quarries of the Nile cliffs, and summoning thence stately and rhythmic colonnades, imposing temples and a vast rampart of pyramids, the greatest tombs ever erected by the hand of man. We must regard these things, therefore, as the outward and monumental expression of man's social and governmental advance, with which we must also remember his unfolding inner life had kept even pace. The quickened imagination which finds expression in noble architectural forms is to a large extent a product of social development, of an imposing vision of the kingship and of the state, as well as of the exalted station of the gods who guide the state. These were new forces unknown to the life of the primitive hunters who elsewhere outside of the Egypto-Babylonian group, still continued to live by the chase throughout most of the world, or had here and there, within reach of influences from the Egypto-Babylonian group, made a beginning in agriculture and cattle-breeding.

In view of the tiny city-kingdoms, disunited and fighting among themselves, which at this time were the only organized

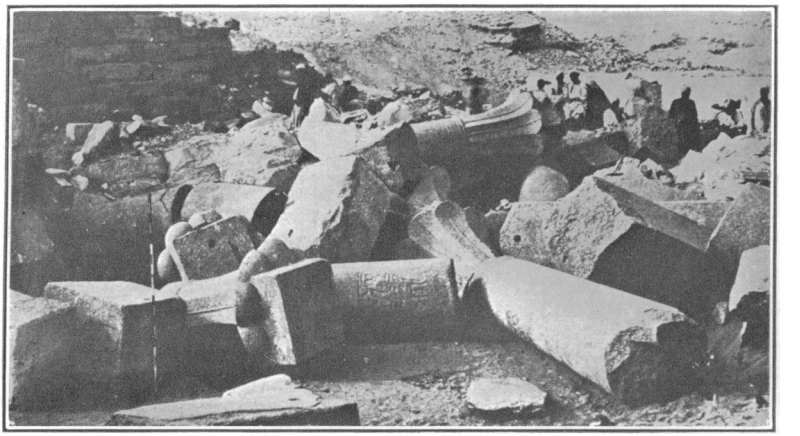

FIG. 82. MONOLITHIC GRANITE COLUMNS AS FOUND BY BORCHARDT IN THE TEMPLE OF SAHURE AT ABUSIR. (Compare Fig. 81.)

states in Babylonia, it is evident that the first great civilized nation of highly cultivated life had come into being on the Nile. Such a fabric of civilized life developed by a great community of several million souls could not exist for five hundred years without exerting a profound influence in the adjacent Mediterranean upon which it looked out and likewise in neighboring Asia which began at the eastern delta gates. The evidences for early Egyptian influences moving across the Mediterranean

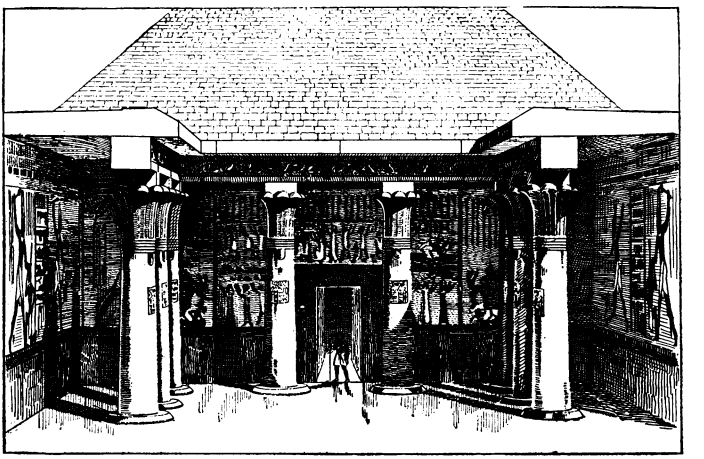

FIG. 83. RESTORATION OF THE COLONNADED COURT OF THE PYRAMID TEMPLE OF SAHURE. (After Borchardt.) From the columns found as shown in Fig. 82 it was not difficult to restore the court as it was left by the architects. This court is the oldest colonnaded structure now known in the history of architecture, having been erected not long after the middle of the 28th century B.C. It is evidently the ancestor of the colonnaded courts of Hellenistic Europe as shown in Fig. 123.

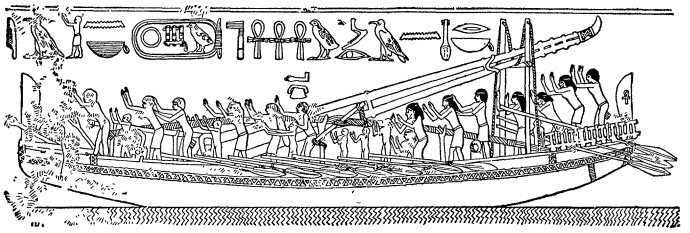

FIG. 84. EARLIEST REPRESENTATION OF A SEA-GOING SHIP, FOUND AMONG THE WALL RELIEFS IN THE PYRAMID TEMPLE OF SAHURE. (After Borchardt.) The Pharaohs of the Third Dynasty in the 30th century B.C. were already carrying on commerce in the Mediterranean with such ships as this, although this relief scene was sculptured in the middle of the 28th century. Such vessels represent the beginning of salt sea navigation.

and entering Stone Age Europe are now obvious enough. From a study of the archaic remains of Crete Sir Arthur Evans observes: "The possibility of some actual immigration into the island of the older Egyptian element . . . can not be excluded."[27] The excavation of the Abusir pyramids and temples has revealed the ships which carried these Egyptian influences across the eastern Mediterranean (Fig. 84). These are the earliest known sailing ships and the earliest sea-going craft of which we know the form and rig. When the Mediterranean peoples, like the Phœnicians, afterward likewise took to the sea, their ships (Fig. 116) were reproductions of these Egyptian vessels. It is therefore evident that the Egyptian sailing ships which crossed the Mediterranean at the beginning of the Pyramid Age as early as the thirtieth century B.C. were not only the first sea-going ships devised by man, but were likewise the ancestors of all salt-water craft of the early world, and hence of the modern world also. The native shipping of East Indian waters to this day exhibits details and characteristics which are of unmistakable ancient Egyptian origin.

*(To be continued.)*

[27] "New Archæological Lights on the Origins of Civilization in Europe," presidential address before the British Association, 1916, reprinted Annual Rep. Smithsonian Inst., 1917, p. 441.